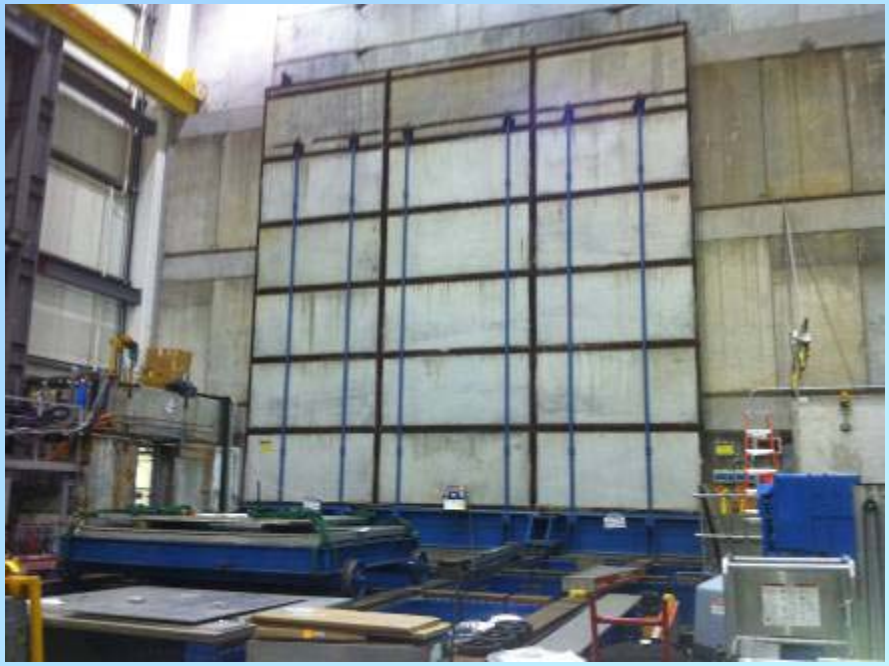
PHENIX

TECHNICAL SUPPORT 2011

# PHENIX WEEKLY PLANNING



5/12/2011

Don Lynch

# This Week:

Maintenance Access (yesterday)

VTX pixel ground repairs

~80% of repaired ladders were recovered (14 of 18)

Other tasks?

RPC Factory annual review action items completed

MuTr station 1 overhaul factory setup in progress

Continue Prep for FoCal prototype installation (waiting for prototype)

Continuing mechanical, electrical and gas system support for Run 11

Continue planning for shutdown 2011

Future upgrades support

# Next Week

No Scheduled Maintenance Access?

Continue Prep for FoCal prototype installation (waiting for prototype)

Continuing mechanical, electrical and gas system support for Run 11

Continue planning for shutdown 2011

Future upgrades support

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# Planning For the 2011 Shutdown

- Prep for shutdown — 2/1-6/30/2011
  - Define tasks and goals
  - Analysis and design of fixtures, tools and procedures
  - Fabricate/procure tools and fixtures
  - Tests, mockups, prototypes
  - Receive, fabricate, modify, finish installables (bigwheels, tubing, etc.)
  - MuTr, RPC1 and VTX/FVTX installation review (combined) — ~6/15/2011
  - Assembly and QA tests
- AH Crane temporary reconfiguration (crane out of service during reconfig) — 4/15-5/15/2011
- Run 11 Ends — 6/30/2010
- Shutdown Standard Tasks — 7/1-7/21/2010
  - Open wall, disassemble wall, Remove MuID Collars,
  - Move EC to AH, etc.
- IR Crane repairs and upgrade — 7/21-7/28
- Disassemble VTX services — 7/11-7/22
- Remove VTX and transport to Chemistry Lab — 7/25/2011
- BBC North maintenance — 7/22-7/29/2011
- MuTr North Station 1 work — 7/25-9/30/2011
  - Install access (scaffold & CM west side hanging platform)
  - Remove 1 section of bridge (1 week)
  - Disconnect Cables, hoses etc, ID/label all (1 week)
  - Remove FEE plates and chambers (1 week)
  - Station 2 Maintenance/upgrade through access opened by station 1 removal (3 weeks concurrent with next task)
  - Clean/install new parts and upgrades (MuTr (3 weeks, concurrent)
  - Re-install chambers and FEE plates (1 week)
  - Re-cable, re-hose and test (3 weeks)

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# Planning For the 2011 Shutdown (cont'd)

- VTX maintenance/upgrade and integration of FVTX onto VTX support structure — 7/25-9/25/2011
  - Disassemble/repair/upgrade/test/reassemble VTX (3 weeks)
  - Resurvey as necessary (1 week)
  - Install FVTX (3 weeks)
  - VTX/FTX survey and QA tests (2 weeks)
- RPC1 and Absorber upgrades — 7/25-10/28/2011
  - Pre-survey RPC1's at factory (2 weeks, 1 each for n & s)
  - Install north absorbers (1 week)
  - Install north RPC1 (including north rack) (3 weeks)
  - Install south absorbers (1 week)
  - Install south RPC1 including south rack (3 weeks)
- Upgrade AH crane — 8/15-9/15/2011
- DC/PC1 East troubleshooting (DC moved forward on rail for access) — 10/15-11/15/2011
- Install VTX&FVTX (including 2 racks) (2 weeks) — 9/26-11/7/2011
- Undefined detector subsystem maintenance and repairs — 7/25-11/7/2011
- Prep for EC roll in — 11/3-11/7/2011
- Roll in EC — 11/10/2011
- Prep IR for run — 11/10-11/17/2010
- VTX, FVTX and RPC1 Services and commissioning (including 4 new racks) — 9/16-11/30/201
- Pink/Blue/White sheets — 11/17-11/30/201
- Run 12 cooldown — 12/1/2011

## Tools/Fixtures Needed for Shutdown 2011

- FVTX/VTX modified assembly fixture – in progress
- FVTX Inspection Tool(s) – not yet specified
- Modified FVTX/VTX installation/transport fixture(s) – in progress
- RPC Absorber assembly tool(s) – need absorber design first
- RPC Absorber installation tool(s) – need absorber design first
- Station 1 north/south scaffolding – in progress
- RPC1 assembly fixture(s) – need RPC1 design first
- RPC RPC1 transport/installation fixture(s) – need RPC1 design first
- MuTr vacuum lifter dummy load (for load test and mock install) – in progress
- MuTr stations 2/3 north access scaffolding – meeting 5/16 for spec
- MuTr stations 2/3 north assembly/positioning/holding fixture – meeting 5/16 for spec

# Parts Needed for Shutdown 2011



- Improved/upgraded VTX parts – not yet specified
- VTX assembly(s) – not yet specified
- FVTX support structure – in progress
- FVTX big wheels – parts to be fabricated by FVTX group; brazing to be done locally, expect parts next week
- Big wheel mounts – by FVTX group – Done
- VTX arc cable trays and mounts – Design done, fabrication in progress
- RPC absorber components/assemblies/mounting/tools and fixtures – waiting for RPC group design
- RPC1 components/assemblies – by RPC group in progress
- RPC1 mounting/installation components – concept ready waiting for final design input from RPC group
- BBC N& S wire management modifications – waiting for RPC1 final design
- MuTr station1/2/3 Repair/upgrade components – parts to be supplied by MuTr group.

# Parts Needed for Shutdown 2011



- **Parts for Other Shutdown Work**
  - Misc. Subsystem Part(s) – not yet specified
  - Gas Mixing House Maintenance and upgrade parts – not yet specified
  - PHENIX Infrastructure Maintenance and improvement parts – not yet specified
  - Gas Pad maintence/repair/upgrade parts – not yet specified
  - PC1/DC repairs and improvements parts – not yet specified
  - IR Bridge electrical service upgrade parts – not yet specified
  - FoCal Support parts – not yet specified
  - RPC Factory Support parts – not yet specified
  - Rack room upgrades parts – not yet specified
  - CM Crane parts – project is on hold indefinitely
  - CM Alignment Stop parts – in design queue
  - Gas system maintenance/repair/upgrade parts – not yet specified
  - Future upgrade support parts – not yet specified

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## Procedures for Shutdown 2011

- Existing PHENIX General Purpose Recurring Task procedures
- VTX Removal
- FVTX/VTX installation
- VTX Survey
- FVTX Survey
- FVTX Cooling System
- RPC borated PE/Pb or Li Absorber
- RPC1 Installation/QA testing/Survey
- MuTr Maintenance & Upgrade
- MuTrigger Maintenance and Upgrade

Procedures will be part of 1 WP for VTX and FVTX

Procedures will be part of 1 WP for RPC1 & thermal neutron absorber

## Work Permits for Shutdown 2011

- Start of Shutdown
- VTX Removal/FVTX/VTX Installation
- MuTr Maintenance and Upgrade
- RPC Absorber Upgrade/RPC1 Installation
- MuTrigger Maintenance and Upgrade
- End of Shutdown

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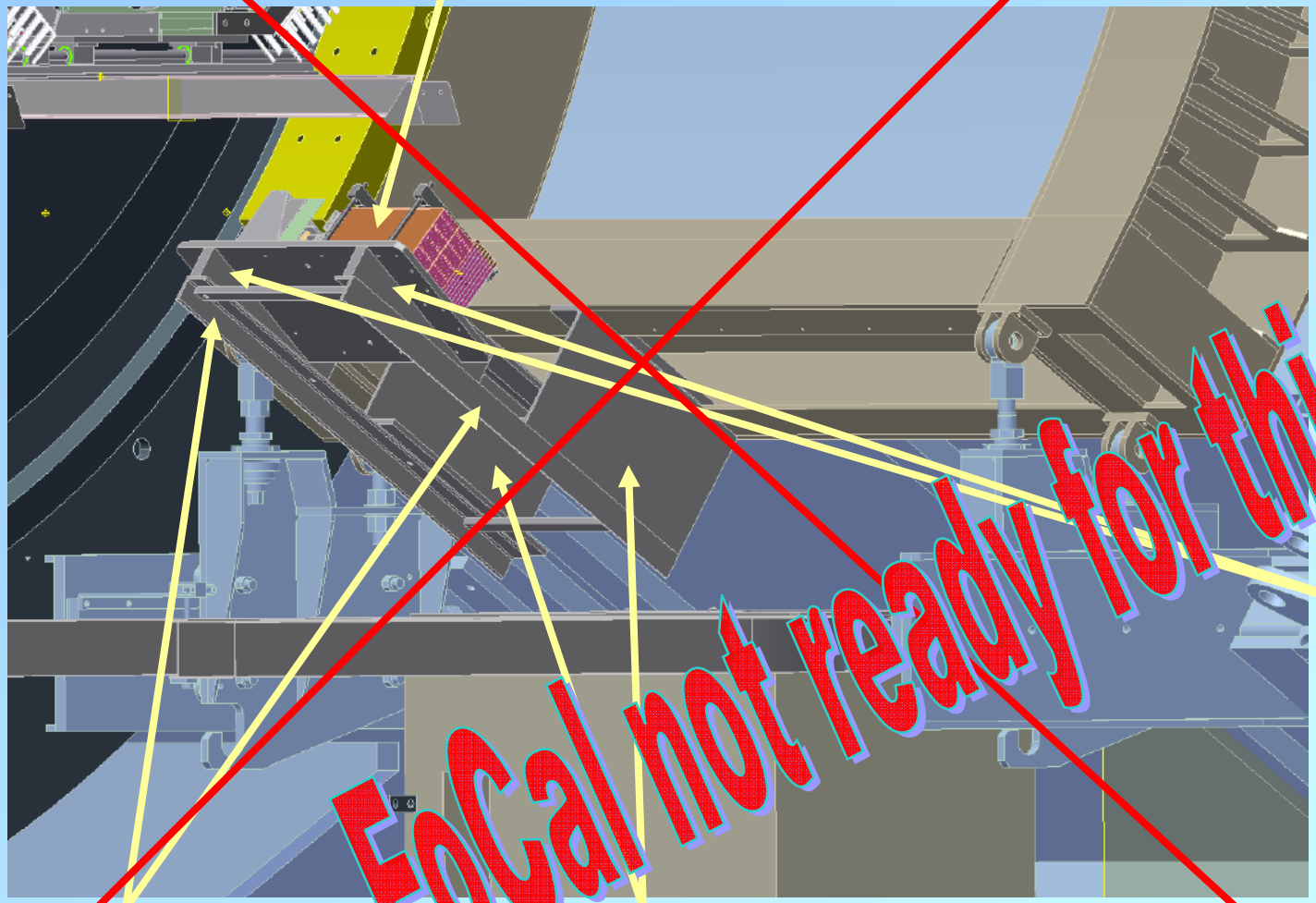
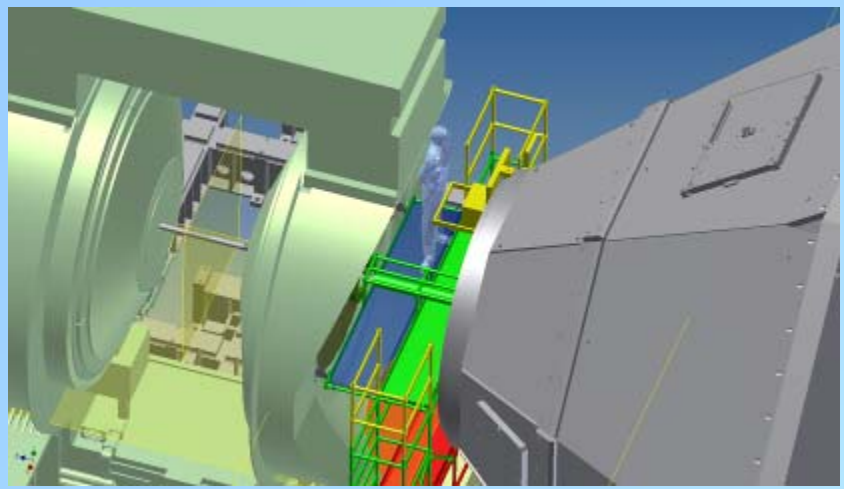
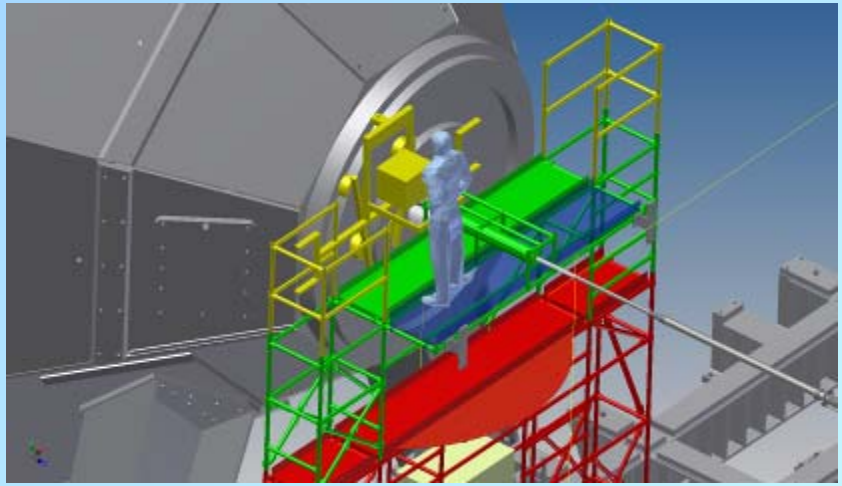


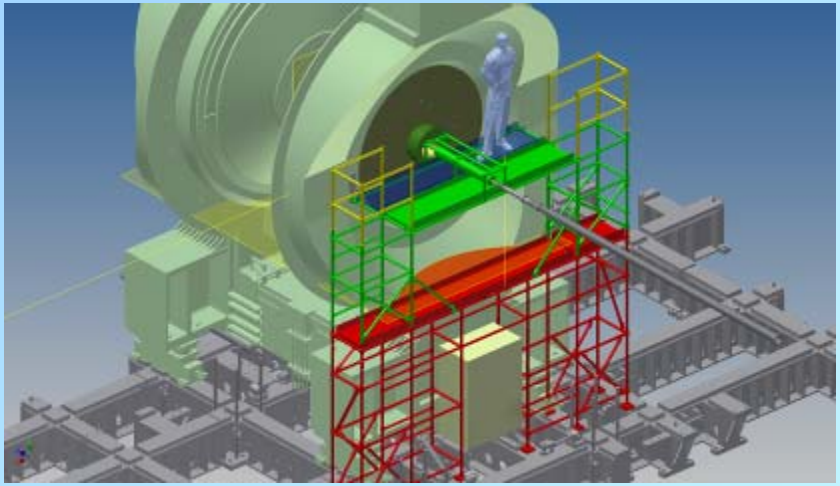

FoCal not ready for this run

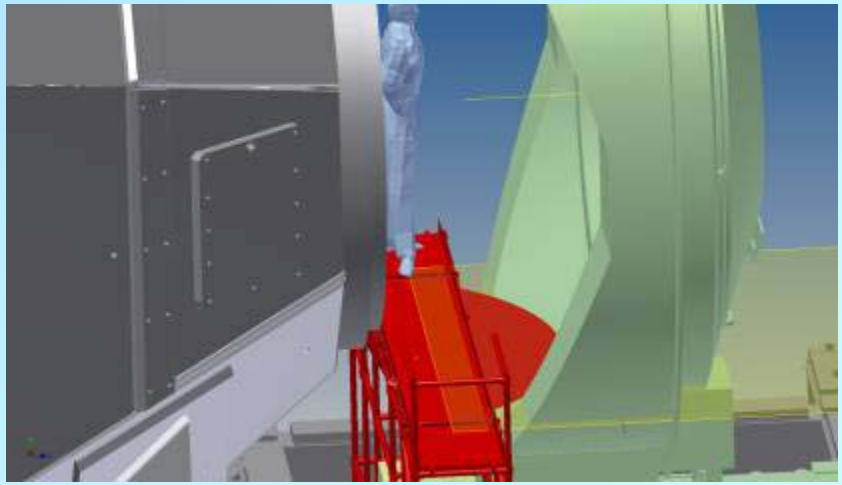
5/5/11

# MuTr & RPC1 Work platform/scaffold









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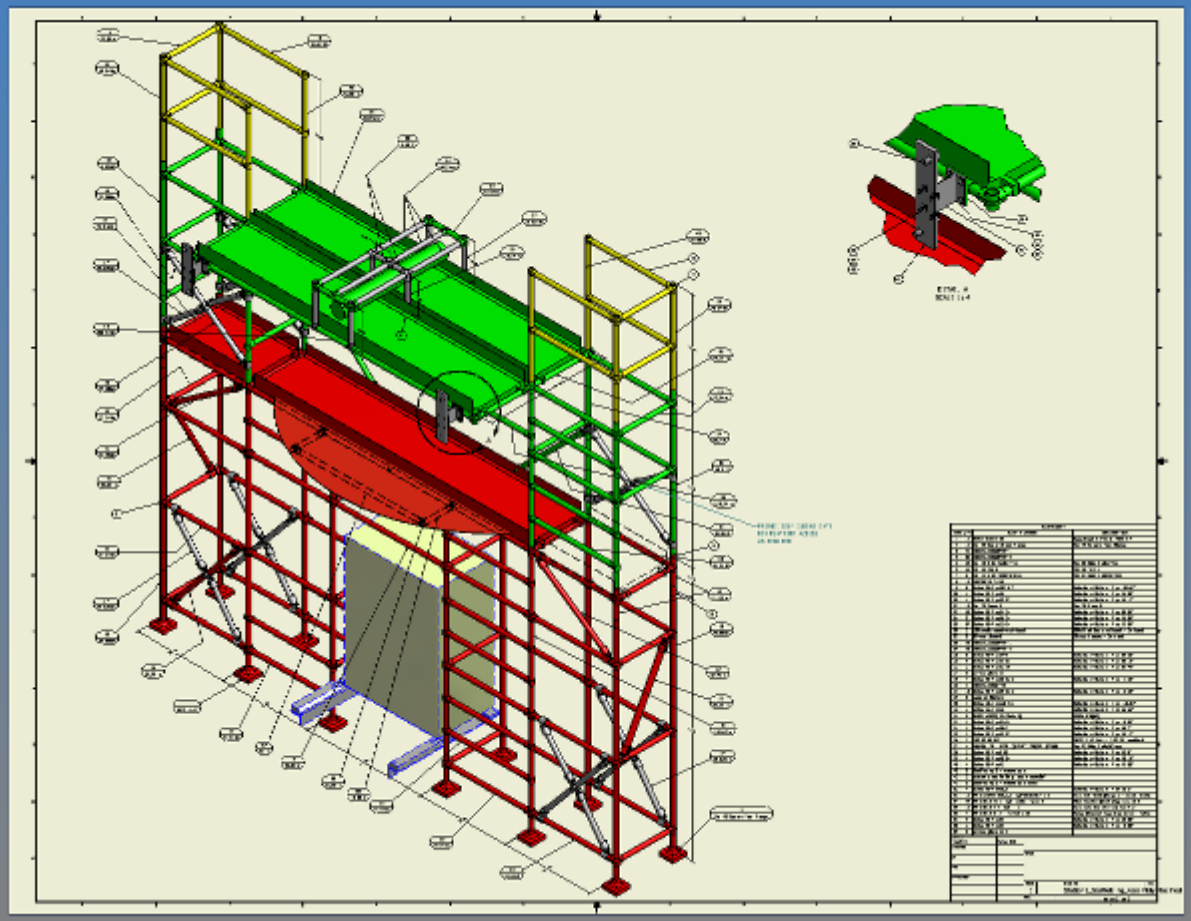

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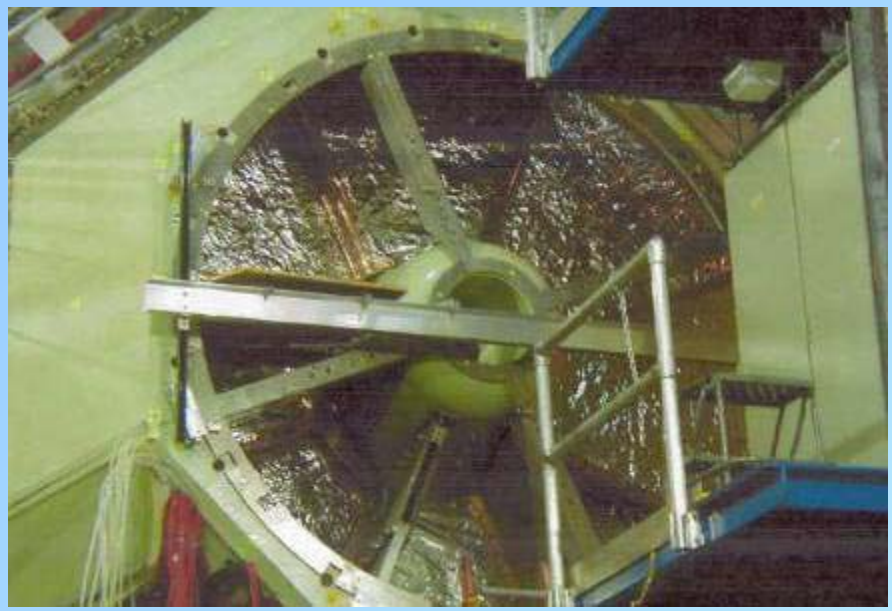

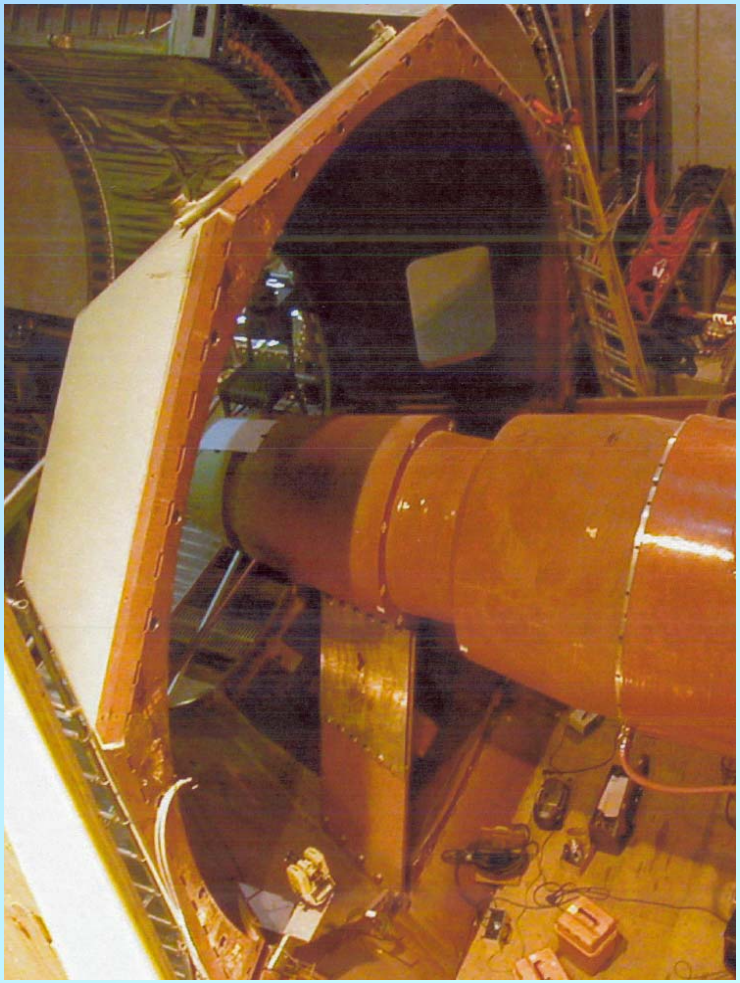

Station 2 access (MMS shown MMN is similar)

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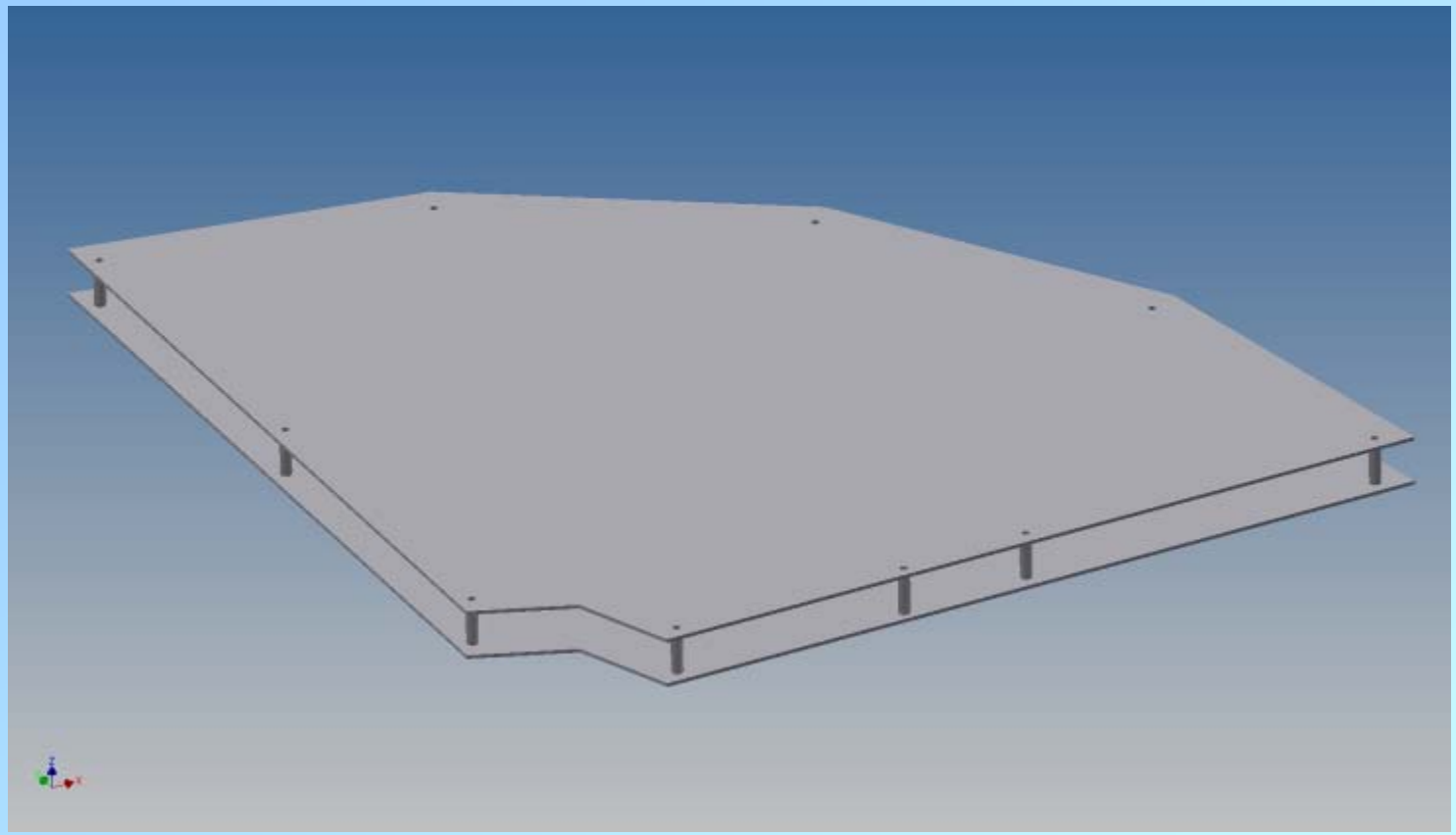
MuTr station 1 lifting fixture



Dummy MuTr Station 1 Octant. Will be used to re-qualify vacuum lifting fixture and to practice using vacuum lifting fixture prior to removing station 1 north octants.

# AH and IR Crane Corrective Actions

IR Crane 1 ton replacement parts received. Paul and Mike R. planning for upgrade work.

AH Crane (both hooks) out of commission until repaired. CAD engineering evaluating options:

The Plan:

A. Remove speed reduction and use as originally equipped – By May 31 THEN…

B. Add bracketry to recertify as is – Feasibility under review – Probably NO GO

C. New Drive – cost and lead time Preferred, but can't be installed for start of shutdown.

Expect to have 40 ton Crane back in service by May 31
Don't expect 10 ton crane to be back in service until Sept., at the earliest, possibly until 2012

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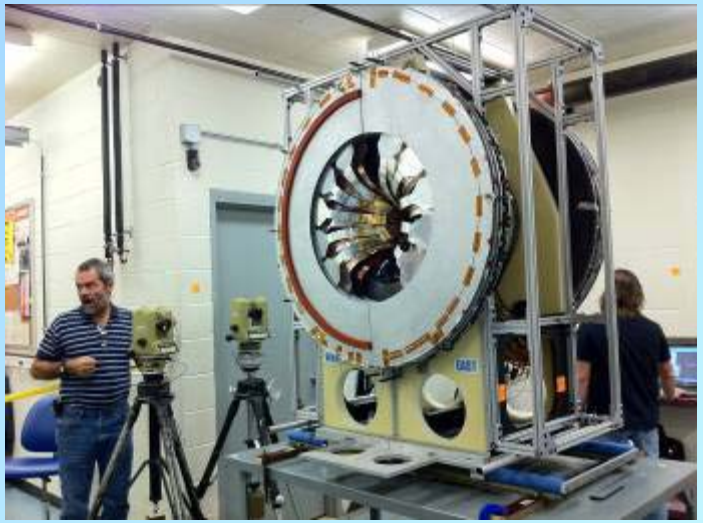

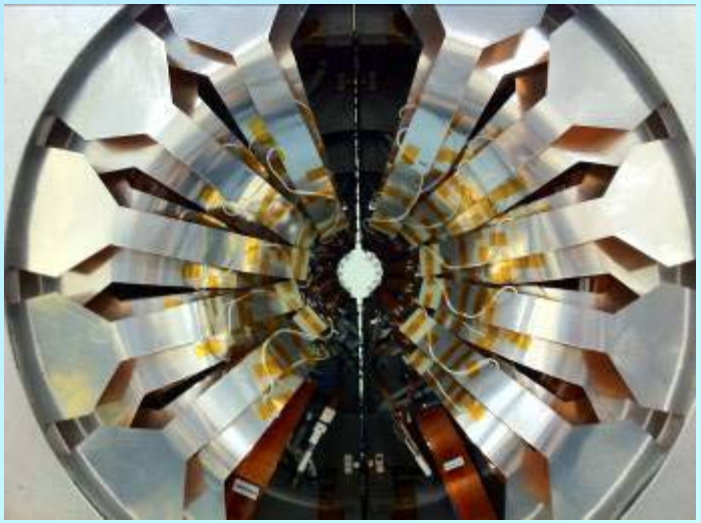

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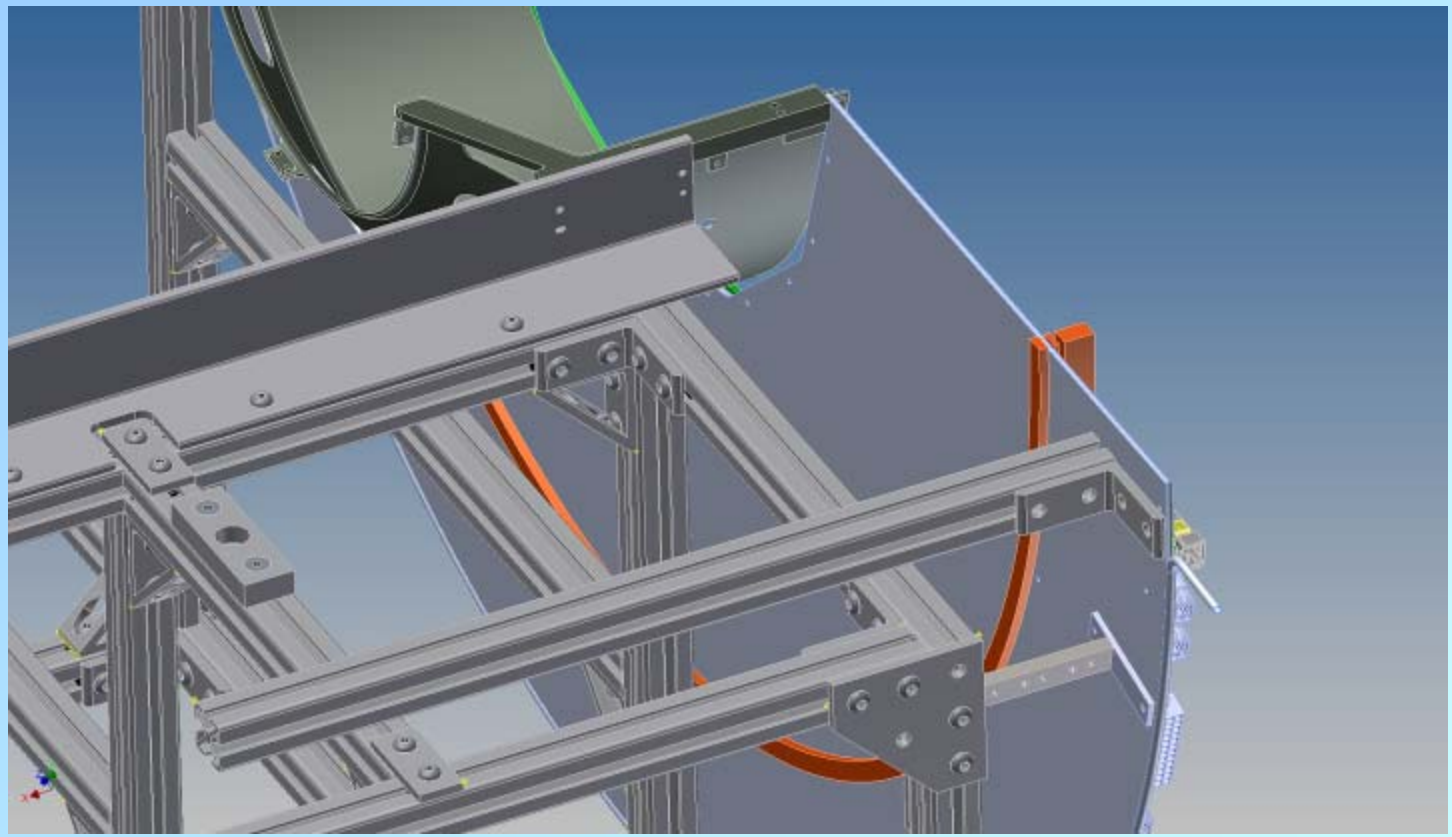

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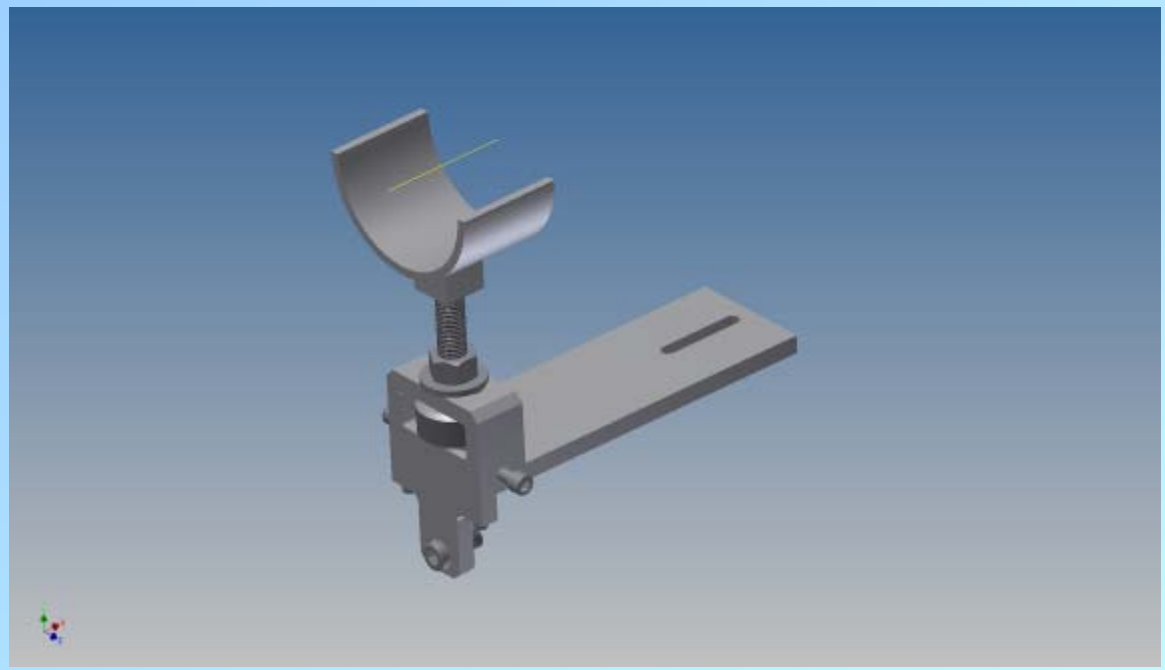
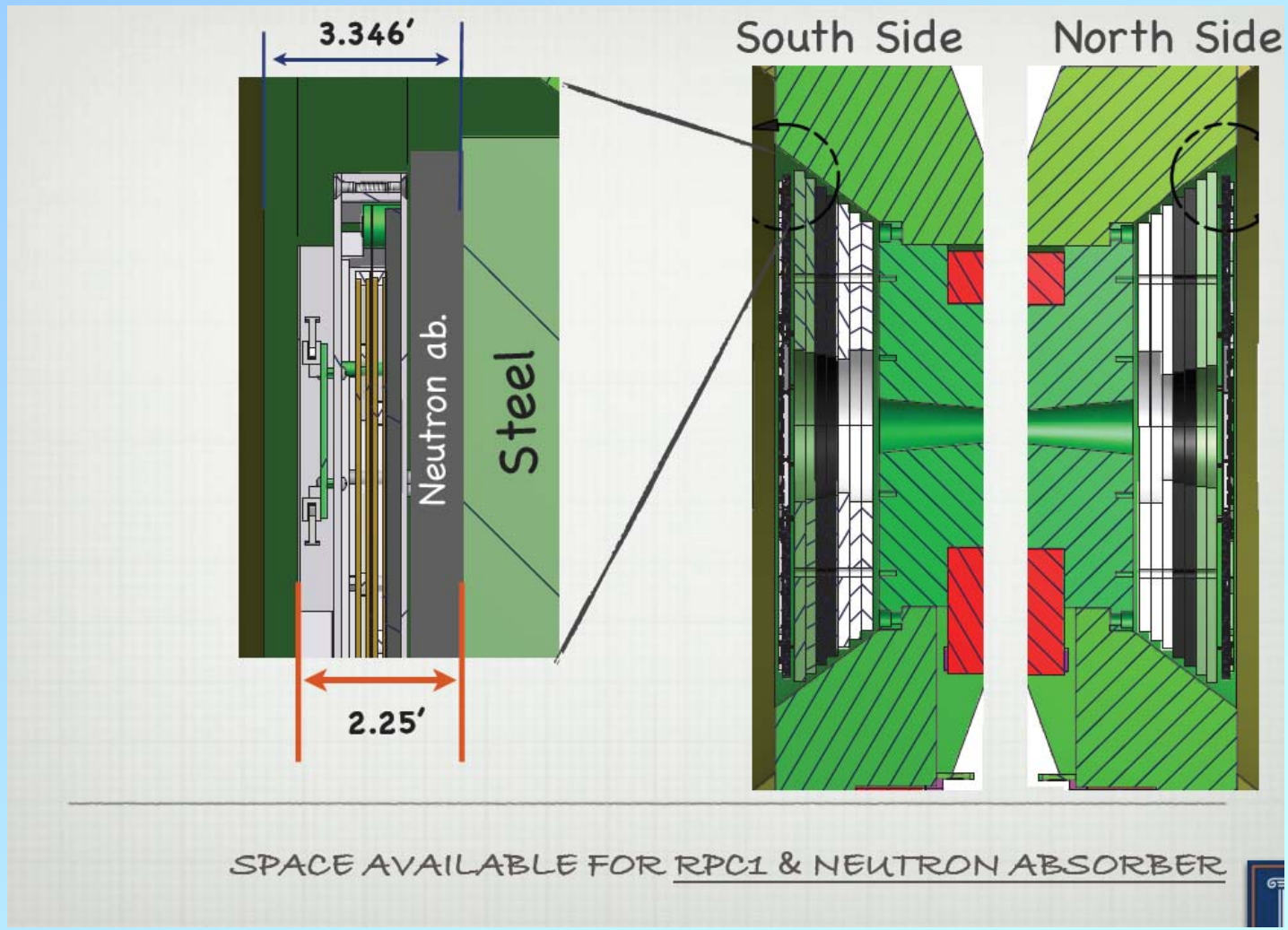


Improved Beampipe support for north station 1 support.

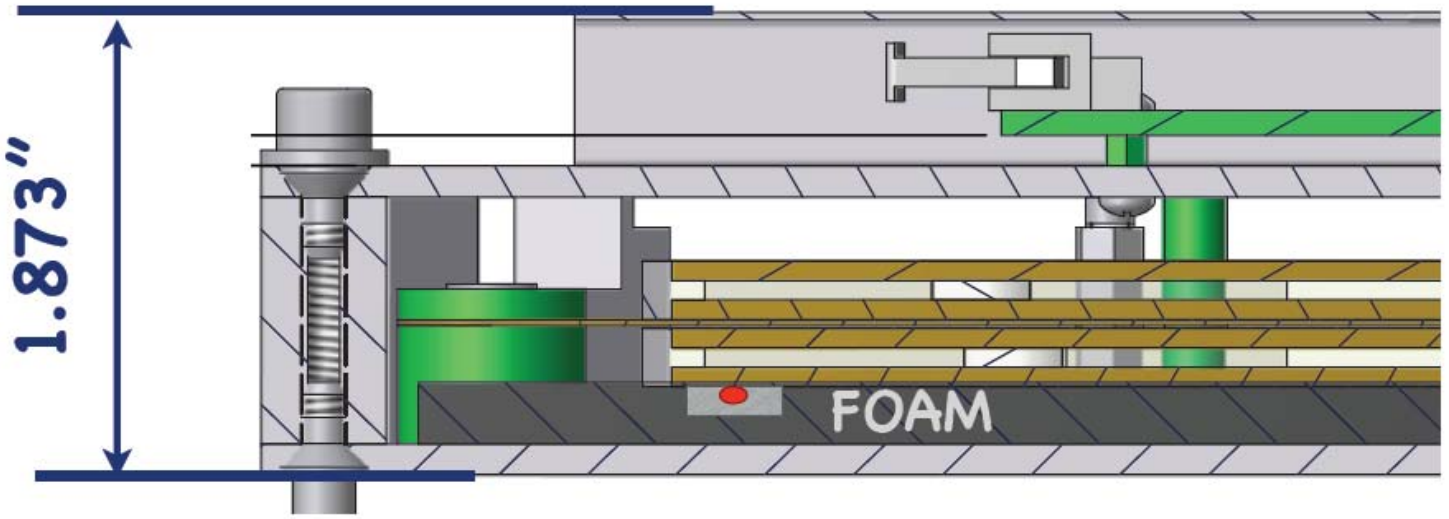
New wider rings have also been designed for south station 1 support. Both supports are intended to improve support when moving CM and MMS magnets during shutdown maintenance, based on experience last year and lessons learned as recorded during our 2010 shutdown closeout meeting.

***Fabrication in progress at Central Shops***

# RPC1 Design including Thermal Neutron Absorber
## (Slides from this month's DC meeting by Francesca Giordano)



Minimum thickness needed for
RPC1: 1.873"




Left thickness for Neutron absorber: 0.38"

2.25": SPACE AVAILABLE FOR RPC1 & NEUTRON ABSORBER

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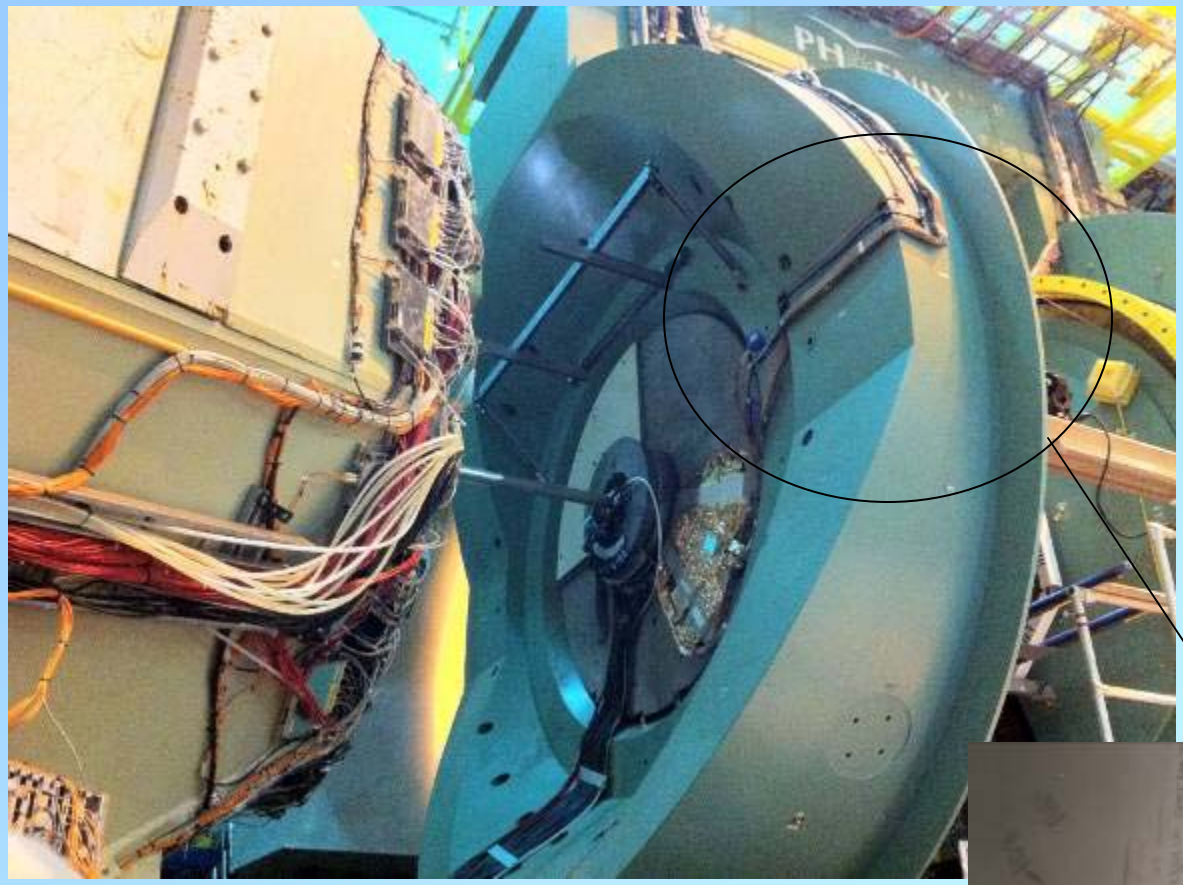

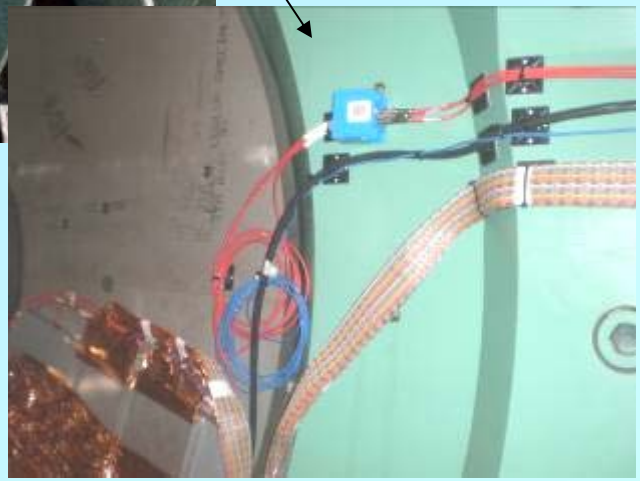

RPC1 Prototype Currently Installed

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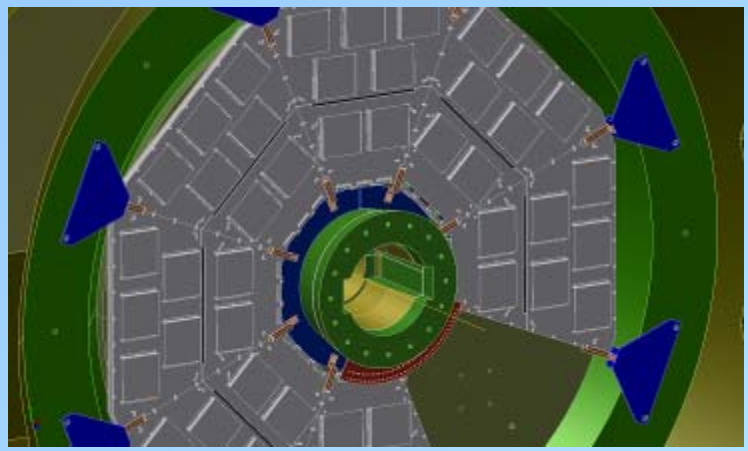
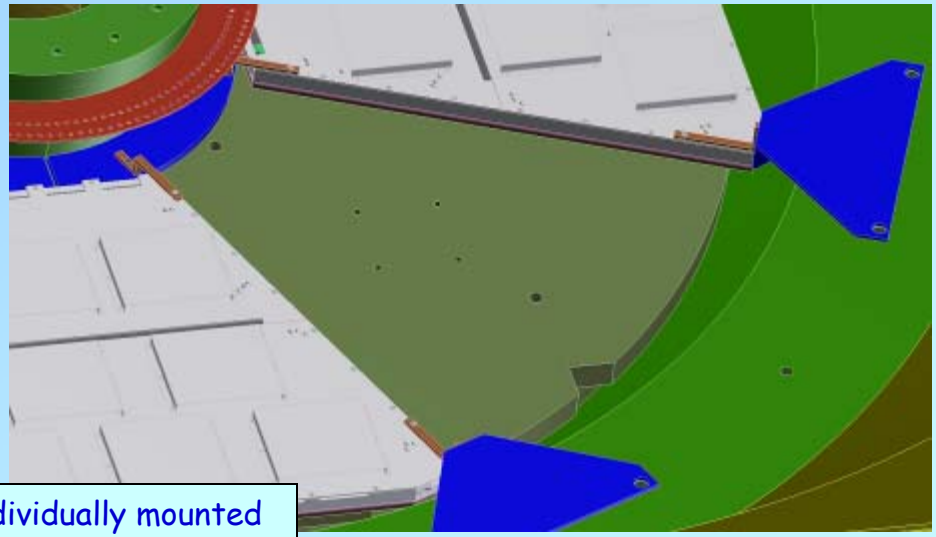
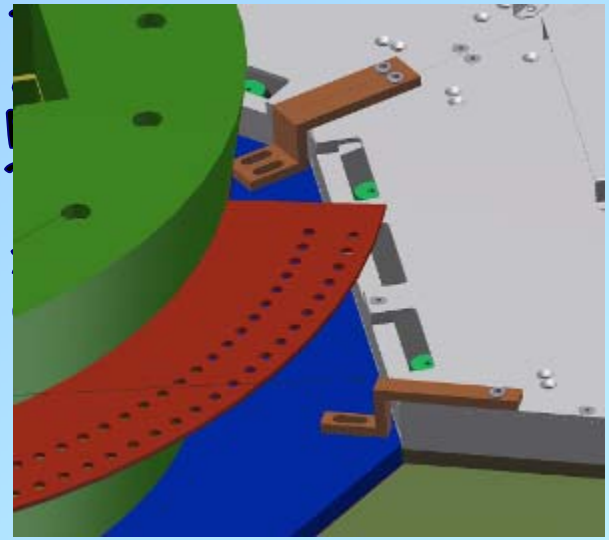
# RPC1 Mounting Concept

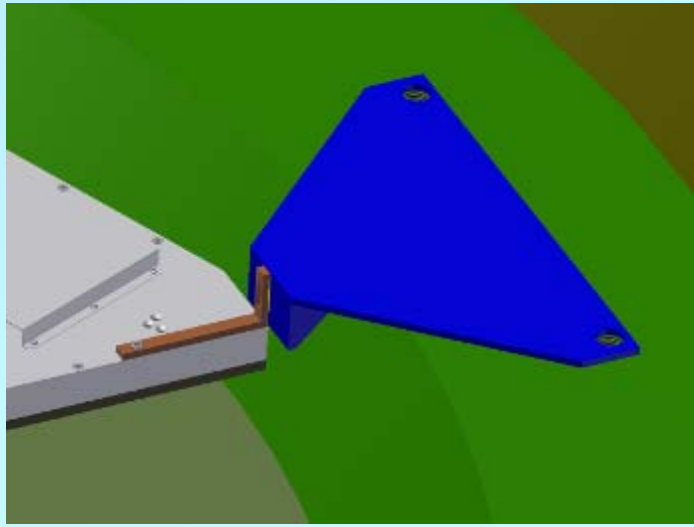
## (Preliminary)







Octants are individually mounted then tied together and supported at the outer octant boundaries by brackets mounted on existing tapped holes, and on inner edges by rings which wedge against the flower pot lead liner. The absorber section is assumed to be pre-attached to the octants. Tapped thru holes in 6 places on each octant are used both to mount the absorber section and to attach the mounting brackets.



# 2010 Building Maintenance Issues

- Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall, over door between control room and elect. ass'y room, southeast corner of IR and laser room.
- General maintenance for Trailer Offices (in progress)
  -Repair replace floor tiling as needed
- Flooding in AH/ Driveway
- New
  connection

Nothing New This Week

## PHENIX Procedure Review Current Status:

147 Procedures Identified

87 Made Inactive (not currently in use, will require revision to re- activate if and when necessary, available for reference)

9 CAD procedures relevant to [illegible] and available on the CA[illegible]

43 PH[illegible] a[illegible]

9 Prop[illegible]ures (never previously formalized) (3 are ready for r[illegible]e will be addressed during next few months.


Web retrieval of latest procedures now available from PHENIX Internal:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm

# Safety, Security, Etc.



1. **RPC Factory annual safety review**

   **All action items completed.**

2. **FoCal Prototype safety review**

   **Not expected to be ready for this run. To be tested in a test beam at FNAL in late summer 2011. (per John Lajoie)**

3. EMS/OSH Registration audit will take place June 2-3.

   CAD personnel will be looking around for calibration issues, inspection issues, etc. Please help them and cooperate as necessary, they are here to make sure we are in compliance before the audit takes place.

   *45 minute seminar to prepare for this audit at CAD given 11:15 – Noon building 911 in the Snyder Seminar Hall on the following dates:*

   *May 17, 19, 24 and 26*

4. Training Update sent out last week.

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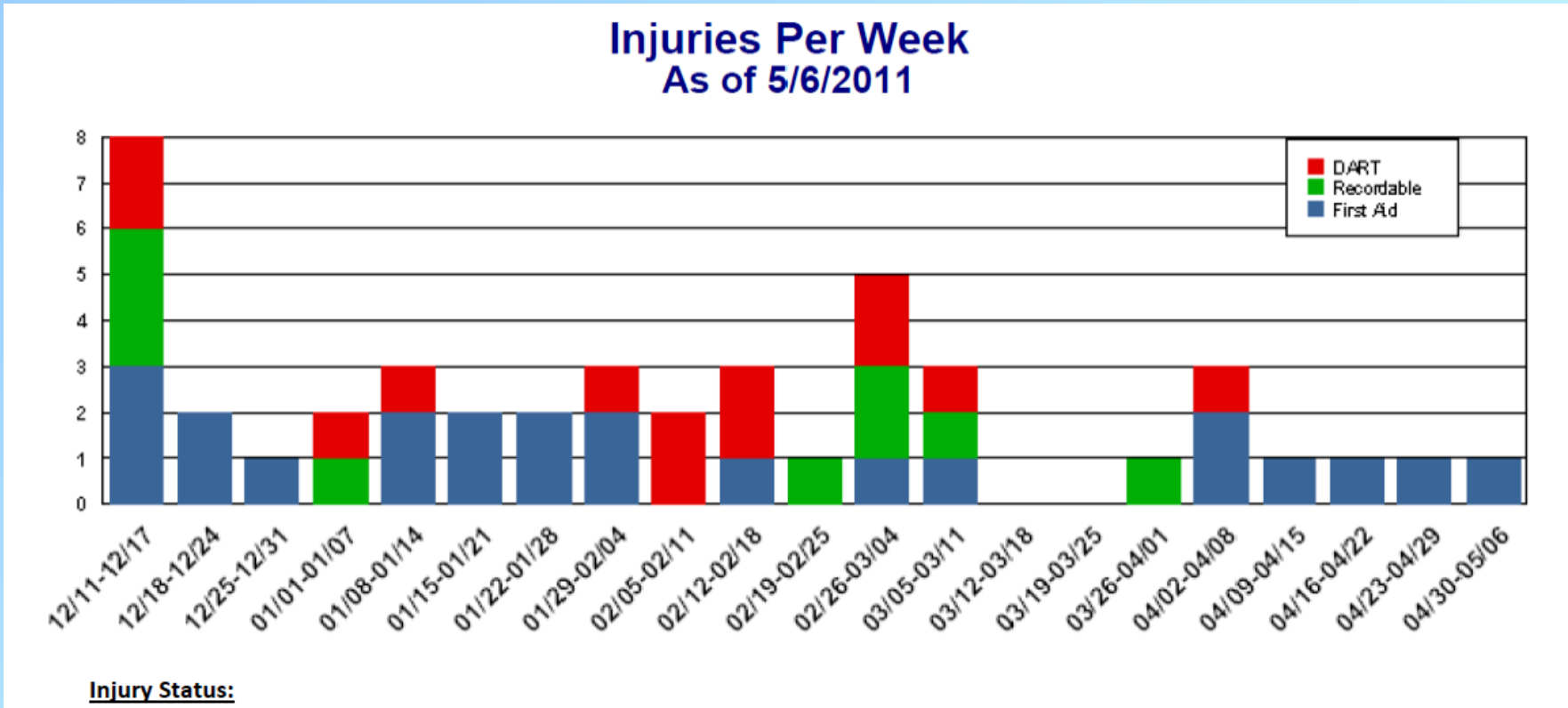
5. BML Injury Report: No reportable/DART cases last week (1 first aid)




**Injury Status:**

# Where To Find PHENIX Engineering Info

The Schedule for the shutdown is updated weekly and posted in the PHENIX weekly planning meeting slides. These can be accessed at the weekly planning link on the PHENIX engineering web page listed below.

**Links for the weekly planning meeting slides, archives of past meeting slides,long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:**

**http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm**